

CLAIMS

What is claimed is:

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- 1 1. A process chamber airflow system, comprising:
2 a blower suitable for creating an initial flow of air suitable for circulation in a process
3 chamber;
4 a plenum capable of receiving the initial flow of air; wherein the plenum is connected to
5 the blower and the process chamber; and
6 an air diffuser, connected to the plenum, wherein the air diffuser contains a plurality of
7 holes, such that the initial flow of air through the plenum is reduced.

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- 1 2. The process chamber airflow system of claim 1, wherein the air diffuser further
2 comprises:
3 a means for securing the air diffuser to the plenum.

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- 1 3. The process chamber airflow system of claim 1, wherein the reduction in airflow
2 is sufficient to cause the initial airflow to be distributed uniformly through the plurality of
3 holes in the air diffuser.

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- 1 4. The process chamber airflow system as claimed in claim 3, wherein the air
2 diffuser is capable of eliminating initial airflow turbulence entering the plenum from an
3 air filter.

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- 1 5. The process chamber airflow system of claim 1, further comprising a filter
2 disposed between the blower and the plenum.

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- 1 6. The process chamber airflow system as claimed in claim 5, wherein an individual
2 hole, included in the plurality of holes, cross-sectional area varies.

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1 7. The process chamber airflow system of claim 1, wherein the air diffuser is capable
2 of dissipating static charges.

1 8. The process chamber airflow system of claim 1, wherein the air diffuser's
2 plurality of holes are uniformly distributed throughout the air diffuser.

1 9. The process chamber airflow system of claim 1, wherein the air diffuser is capable
2 of being disposed on one side of a generally cubic chamber of a semiconductor
3 production device.

1 10. The process chamber airflow system of claim 1, wherein the chamber is suitable
2 for utilization in microchip production.

1 11. The process chamber airflow system of claim 1, wherein the air diffuser is capable
2 of diffusing air such that contaminate particles are not entrained in the chamber airflow.

1 12. The process chamber airflow system of claim 1, wherein the plurality of holes
2 range in size from 0.125 inches to 0.5 inches.

1 13. An air diffuser for utilization in a process chamber, comprising
2 a means for securing the air diffuser to the process chamber; and
3 a plate with a first side and a second side, connected to the securing means, wherein the
4 plate includes a plurality of holes penetrating the first and the second sides; wherein the
5 plurality of holes are uniformly dispersed throughout the plate; wherein the plurality of
6 holes are sufficient to cause the first side of plate to experience a first pressure and the
7 second side to experience a pressure lower than the first pressure when the plate is
8 disposed in an airflow.

1 14. The air diffuser of claim 13, wherein the plurality of holes has a total cross-
2 sectional area lower then that of an inlet supplying the airflow.

1 15. The air diffuser of claim 13, wherein the change in pressure between the first and
2 the second sides of the plate is sufficient to distribute the airflow through the entire
3 plurality of holes.

1 16. The process chamber airflow system of claim 13, further comprising a filter
2 disposed between the blower and the plenum.

1 17. The process chamber airflow system as claimed in claim 13 wherein an individual
2 hole, included in the plurality of holes, cross-sectional area varies.

1 18. The air diffuser of claim 13, wherein the plate is capable of dissipating static
2 charges.

1 19. The air diffuser of claim 13, wherein the air diffuser is capable of diffusing air
2 with a substantially laminar flow.

1 20. The air diffuser of claim 13, wherein the plurality of holes range in size from
2 0.125 inches to 0.5 inches.

1 21. A method of providing substantially laminar airflow in a process chamber,
2 comprising:
3 generating an initial flow of air with an initial cross-sectional area;
4 disposing an air diffuser with a plurality of uniformly spaced hole in the airflow;
5 wherein a total cross-sectional area of the plurality of holes is less then the initial cross-
6 sectional area;

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- 7 creating a back-pressure of air due to the reduction in the cross-sectional area through the
- 8 plurality of holes;
- 9 dispersing a portion of the initial airflow uniformly across the air diffuser;
- 10 providing uniform airflow through the plurality of holes included in the air diffuser, to the
- 11 process chamber.